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COMPLETE SPECIFICATION

Solubilizing of Mineral, Vegetable and Animal Oils for Cosmetic and Industrial Purposes

I, IRWIN IRVILLE LUBOWE, a Citizen of the United States of America, of 667, Madison Avenue, New York 21, New York, in the United States of America, do hereby declare this invention for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to solubilizing of mineral, vegetable and animal oils (hereinafter simply called oils) in C_1-C_4 water miscible or water soluble monohydric aliphatic alcohols.

It has hitherto not been readily possible to prepare clear non-separating solutions of oils with monohydric aliphatic alcohols, because oils are normally immiscible with monohydric aliphatic alcohols. The expression oil (or oils) in this specification therefore refers to mineral, vegetable and animal oil, or oils which are normally immiscible with monohydric aliphatic alcohols.

Normally mixtures of monohydric aliphatic alcohols and oils will readily separate, and therefore if prepared as temporary emulsions will have diminished pharmaceutical and therapeutic effectiveness, cosmetic consumer acceptance, industrial applicability and efficiency.

It is the primary object of the present invention to provide a novel solubilized oil composition in which such oils will form a solution with the monohydric aliphatic alcohols and which product may be used as a base for cosmetic preparations such as hair tonics, hand lotions, as well as facial astringents, anti-perspirant preparations, and anti-dandruff preparations.

According to the present invention I provide a solubilized non-aqueous composition comprising a monohydric aliphatic alcohol as herein defined and an oil as herein defined made miscible and solubilized in each other by inclusion of a solubilizer comprising an aliphatic alcohol and/or acid having 10 to 24 carbon atoms in the carbon chain in an amount ranging from 5% to 30% of the solubilized composition, with the oil and the monohydric aliphatic alcohol constituting substantially the whole of the balance in such proportions that the monohydric aliphatic alcohol constitutes 20% to 40% of the composition and the oil constitutes 15% to 40% of the composition.

To prepare a hair lotion preparation according to the invention I may add to the composition lanolin derivatives, antiseptics, rubefacients, estrogenic hormones, methyl sulfoxide and solubilized amino acids.

To prepare an anti-perspirant preparation according to the invention I may add to the composition aluminium, zinc or zirconium salts and silicones and deodorants as hexachlorophene.

To prepare a silicone protective preparation according to the invention I may add to the composition alcohol soluble silicones, as dimethyl polysiloxanes, lanolin derivatives and antiseptics, as hexachlorophene.

To prepare an after-shaving lotion according to the invention I may add to the composition antiseptics, astringents, as aluminium, zinc or zirconium salts, and also antibiotics as tyrothricin, neomycin and bacitracin.

To prepare an acne preparation according to the invention I may add to the composition compounds of sulphur, polysulfides, resorcin, Vitamins A and D, antibiotics as tyrothricin, neomycin and bacitracin.

To prepare a fungicidal preparation according to the invention I may add to the composition salicyclic acids, benzoic acids, the fatty acids, as propionic, undecylinic, caprylic and thioglycollic acids, and their salts.

To prepare an anti-dandruff lotion according to the invention I may add to the composition sulphur, resorcinol, salicylates, organic sulfides and acetamides.

To prepare a hair lacquer preparation

according to the invention I may add to the composition silicones, polyvinylpyrrolidone (PVP), casein (protein hydrolysates) and lanolin derivatives.

To prepare a permanent waving solution according to the invention I may add to the composition thioglycollic acid salts, PVP, and casein (protein hydrolysates).

To prepare a superfatted transparent soap according to the invention I may add to the composition a transparent soap mixture which contains an alkali, fatty acid, alcohol, and glycerine.

It is among the further objects of the present invention to provide novel solutions of oils in monohydric aliphatic alcohols which will be highly effective in silicone protective lotions to give effective cutaneous protection against soaps, detergents, alkalies, sensitizers, solvents, plasticizers and allergens as well as in various aerosol preparations which are used in the cosmetic field as for example, for hair and nail lacquers and shaving creams.

A further object is to provide a novel composition of the character described which will be useful for the dispersion of cutting oils; drying oils, solvent oils, insect repellents, insecticides and dispersions of pigments in the paint industry.

Still further objects and advantages will appear in the more detailed description set forth below, it being understood, however, that this more detailed description is given by way of illustration and explanation only.

The most satisfactory compositions are those which include as a solubilizer saturated or unsaturated fatty alcohols and/or acids having from 12 to 18 carbon atoms.

Such high molecular fatty alcohols and/or acids may be used by themselves or in combination with other ingredients to form the solubilizer. When combined with other ingredients these high molecular weight fatty alcohols and/or acids should constitute between 25 to 100% of the solubilizer.

The solubilizer is preferably utilized in non-aqueous compositions, although small amounts of water, less than 5%, may be present or added without causing separation of the oil and the monohydric aliphatic alcohol.

Although unsaturated fatty alcohols and/or acids are preferred for use as the solubilizer, it is also possible to include saturated fatty alcohols and/or acids, or even hydroxylated fatty alcohols and/or acids which should preferably be used in minor proportions, as for example from 10% to 40% of the saturated fatty alcohol and/or acid in the solubilizer.

These acids should preferably be used in minor proportions as compared to fatty alcohols and in amounts ranging from 10% to 40% of the fatty alcohols, and the fatty alcohols and fatty acids together forming the solubilizer should not constitute more than 30% of the final composition of oil, monohydric aliphatic alcohol, whether methyl alcohol, ethyl alcohol, or isopropyl alcohol or combinations thereof and the solubilizer.

The same is also true of compositions in which only fatty alcohols or fatty acids are used by themselves. It is usually preferable to use at least one unsaturated fatty acid or fatty alcohol in the solubilizer.

Among the mineral oils which may be used are the following:—

Light mineral oil such as light liquid paraffin.

Heavy mineral oil such as heavy liquid paraffin.

Among the vegetable oils which may be used are the following:—

Sesame	Sweet almond	Palm
Cotton seed	Apricot	
Soybean	Peach kernel	
Sunflower	Safflower	
Corn	Olive	
Peanut	Pine	

Among the animal oils which may be used are the following:—

Neatsfoot Oil	Cod Liver
Sperm	
Lanolin	
Bone Oil	

Among the fatty alcohols and the fatty acids which may be used are those which are as follows:—

Lauryl alcohol	Lauric acid
oleyl alcohol	oleic acid
stearyl alcohol	stearic acid
palmityl alcohol	palmitic acid
linoleyl alcohol	linoleic acid
linolenyl alcohol	linolenic acid
ricinoleyl alcohol	ricinoleic acid
myristyl alcohol	myristic acid
arachidyl alcohol	arachidyl acid

A satisfactory combination is a mixture of lauryl alcohol and myristyl alcohol in equal proportions.

Generally, it is desirable to use the fatty alcohols and the fatty acids in such combinations as may be obtained by splitting them off from the vegetable or animal oils which are to be mixed with or solubilized with the animal, mineral or vegetable oil in the following examples:—

As preferred, the solubilizers are set forth as follows:—

Mixture A

lauryl alcohol	55%
linolenic acid	25%
oleyl alcohol	20%

Mixture B

palmityl alcohol	20%
lauryl alcohol	20%
oleyl alcohol	20%
oleic acid	20%
ricinoleic acid	20%

Mixture C

oleyl alcohol	60%
oleic acid	40%

Mixture D

oleic acid	50%
linoleic acid	50%

Mixture E

linoleic acid	40%
oleyl alcohol	60%

Preferably the final oil-alcohol combination contains from 15% to 40% of the vegetable or mineral oils, from 20% to 40% of the low molecular weight alcohols, and from 5% to 20% of the solubilizers above.

The composition should always contain from 20% to 40% of a low molecular weight aliphatic alcohol, such as ethyl or isopropyl alcohol. Methyl alcohol may be used in industrial products instead of ethyl or isopropyl alcohol.

Instead of oleic acid, lauric acid or oleyl alcohol in the above examples, it is possible to use other saturated or unsaturated or hydroxylated fatty alcohols or acids having from 12 to 18 carbon atoms in the same amounts.

In the preferred composition there is employed about 10% to 20% of the solubilizer.

The preferred mineral oil is light or heavy liquid paraffin.

The preferred vegetable oils are sesame oil, cotton-seed oil, soyabean oil, sunflower seed oil, Safflower, Palm linseed oil and corn oil. Sweet almond oil, Pine, apricot oil, peach kernel oil, avocado oil, olive oil, rice bran oil and peanut oil may also be employed. Animal oils included are Neats Foot, sperm, Lanolin and bone oil. As an additional ingredient essential oils may also be included.

To give specific examples:—

EXAMPLE F

	Parts by Weight.
Light liquid paraffin	20 to 60
Ethyl or isopropyl alcohol	40 to 60
Solubilizer	10 to 40

EXAMPLE G

Cottonseed oil	20 to 40
Ethyl or isopropyl alcohol	40 to 60
Solubilizer	5 to 25

EXAMPLE H

Sesame oil	40
Ethyl or isopropyl alcohol	40
Solubilizer	5 to 25

EXAMPLE I

Corn oil	10 to 50
Ethyl alcohol	10 to 50
Solubilizer	10 to 30

EXAMPLE J

Linseed oil	40
Isopropyl alcohol	40
Oleic acid	10
Linoleic acid	10

EXAMPLE K

Soyabean oil	40
Isopropyl alcohol	40
Oleic acid	10
Linoleic acid	10

EXAMPLE L

Liquid paraffin	20
Ethyl alcohol	50
Lauryl alcohol	10
Oleyl alcohol	10

EXAMPLE M

Virgin olive oil	20
Isopropyl alcohol	50
Oleyl alcohol	10
Double distilled oleic acid	10

EXAMPLE N

Mineral oil	10
Peanut oil	30
Isopropyl alcohol	40
Double distilled oleic acid	10
Oleyl alcohol	10

The above compositions are desirably anhydrous and non-separating and are particularly useful in cosmetics in that they will be highly stable over a wide range of temperatures for long periods of time wtihout separation.

All the compositions are miscible with methyl, ethyl or isopropyl alcohol in any proportions.

The freezing point of the composition is depressed and better lubricating properties are obtained in machinery bearings, as well as in cutting oil used in metal working industries.

To give an example of a cosmetic compound useful as a sun screening lotion:—

EXAMPLE O

	Parts by Weight.
Paraminobenzoic acid	15
Light liquid paraffin	40
Isopropyl alcohol	15
Oleyl alcohol	10
Lauryl alcohol	10

EXAMPLE P

SILICONE HAND LOTION

Low viscosity silicone oil, viscosity 1,000 cs.	15
Soyabean oil	15
Isopropyl ester of lanolin	10
Isopropyl alcohol	40
Mixture E	25

EXAMPLE Q

INSECTICIDE SOLUTION

Mineral oil (light)	30
Isopropyl alcohol	30
Mixture D	5
Insecticides { 2-4 hexandiol	5
Insecticides { dimethyl phthalate	5

EXAMPLE R

Light liquid paraffin	40
Ethyl alcohol	40
Lauryl alcohol	10
Oleyl alcohol	10

EXAMPLE S

	Parts by Weight.
Sesame oil	40
Isopropyl alcohol	40
Oleyl alcohol	10
Double distilled oleic acid	10

EXAMPLE T

	Parts by Weight.
Cottonseed oil	40
Isopropyl alcohol	40
Oleyl alcohol	10
Lauryl alcohol	10

It is apparent that many variations may be made in the formulae.

What I claim is:—

1. A solubilized non-aqueous composition comprising a monohydric aliphatic alcohol as herein defined and an oil as herein defined made miscible and solubilized in each other by inclusion of a solubilizer comprising an aliphatic alcohol and/or acid having 10 to 24 carbon atoms in the carbon chain in an amount ranging from 5% to 30% of the solubilized composition, with the oil and the monohydric aliphatic alcohol constituting substantially the whole of the balance in such proportions that the monohydric aliphatic alcohol constitutes 20% to 40% of the composition and the oil constitutes 15% to 40% of the composition.

2. A composition comprising 20-50 parts of an oil, 20-50 parts of a monohydric aliphatic alcohol, 5-20 parts of a C_{10}-C_{24} aliphatic alcohol and or acid forming a solubilizer and water up to 5% of the weight of the monohydric aliphatic alcohol.

3. A process of making a solubilized composition according to Claim 1 or 2 which comprises mixing a monohydric aliphatic alcohol, an oil normally immiscible in the alcohol and an aliphatic alcohol and/or acid having 10 to 24 carbon atoms in the carbon chain.

4. A process according to Claim 3 which comprises mixing a mineral oil with isopropyl alcohol, oleyl alcohol and oleic acid.

5. A composition according to Claim 1 or 2 in the form of solubilized liquid paraffin comprising:—

	Parts by Weight.
Light liquid paraffin	40
Ethyl alcohol	40
Lauryl alcohol	10
Oleyl alcohol	10

6. A composition according to Claim 1 or 2 in the form of solubilized sesame oil composition comprising:-

	Parts by Weight.
Sesame oil	40
Isopropyl alcohol	40
Oleyl alcohol	10
Double distilled oleic acid	10

7. A composition according to Claim 1 or 2 in the form of solubilized cottonseed oil composition comprising:—

	Parts by Weight.
Cottonseed oil	40
Isopropyl alcohol	40
Oleyl alcohol	10
Lauryl alcohol	10

8. A composition according to Claim 1 or 2 in the form of solubilized soyabean oil composition comprising:—

	Parts by Weight.
Soyabean oil	40
Isopropyl alcohol	40
Oleic acid	10
Linoleic acid	10

9. A composition according to Claim 1 or 2 in the form of solubilized linseed oil composition comprising:—

	Parts by Weight.
Linseed oil	40
Isopropyl alcohol	40
Oleic acid	10
Linoleic acid	10

10. A composition according to Claim 1 or 2 in the form of solubilized Neats Foot oil composition comprising:—

	Parts by Weight.
Neats Foot oil	30
Isopropyl alcohol	50
Lauryl alcohol	15
Myristyl alcohol	5

11. A solubilized composition substantially as hereinbefore described.

12. A process of making a solubilized composition, according to Claim 11, substantially as hereinbefore described.

WITHERS & SPOONER,
Chartered Patent Agents,
148-150, Holborn, London, E.C.1.
Agents for the Applicant.

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